

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	1	"6002483"	USPAT	2002/01/25 07:14
2	BRS	L2	1	"5608522".PN.	USPAT	2002/01/25 07:14
3	BRS	L3	1	"4948257".PN.	USPAT	2002/01/25 07:14
4	BRS	L4	1	"4696568".PN.	USPAT	2002/01/25 07:14
5	BRS	L5	1	((n adj2 a) or na)same (greater adj5 "0..7")	USPAT	2002/01/25 07:17
6	BRS	L6	14	((n adj2 a) or na)same (greater adj5 "0..8")	USPAT	2002/01/25 07:22
7	BRS	L7	4	((n adj2 a) or na)same (greater adj5 "0..8")	US-PGPU ; EPO; JPO; DERWENT ; IBM TDB	2002/01/25 07:26

	Comments	Error Definition	Errors
1			0
2			0
3			0
4			0
5			0
6			0
7			0

EAST - [e1.wsp:1]

File View Edit Tools Window Help

Drafts
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 Pending
 Active
 L1: (51) ((wave near4 front)
 L2: (14) 1 and ("0.07")
 L3: (2) 2 and ((na aperture)
 L4: (13) 2 and ((na aperture))
 Failed
 Saved
 Favorites
 Tagged (0)
 UDC
 Queue
 Trash

Search List Browse Queue Clear
 DBs USPAT Plurals
 Default operator: OR Highlight all hit terms initially

2 and (na aperture)

BRS form ISR form Image Text HTML

	U	I	Document ID	Issue Date	Page	Title	Current OR	Current XR	Retrieval
1	<input type="checkbox"/>	<input type="checkbox"/>	US 6515808	20030204	38	Optical pickup apparatus and objective B2	359/721	359/719; 369/112.01	
2	<input type="checkbox"/>	<input type="checkbox"/>	US 6512640	20030128	61	Objective lens for pickup and light pickup B2	359/719	359/642; 369/112.01	
3	<input type="checkbox"/>	<input type="checkbox"/>	US 6411442	20020625	61	Objective lens for pickup and light pickup B1	359/642	250/201.5; 359/649;	
4	<input type="checkbox"/>	<input type="checkbox"/>	US 6363037	20020326	31	Optical pickup apparatus with objective B1	369/112.26	369/112.06	
5	<input type="checkbox"/>	<input type="checkbox"/>	US 6313956	20011106	39	Optical pickup apparatus and objective B1	359/721	250/201.5; 359/719	
6	<input type="checkbox"/>	<input type="checkbox"/>	US 6192021	20010220	46	Optical pickup apparatus B1	369/53.2	369/112.26	
7	<input type="checkbox"/>	<input type="checkbox"/>	US 6061324	20000509	94	Method for recording/reproducing A	369/112.26	369/44.12; 369/44.14;	
8	<input type="checkbox"/>	<input type="checkbox"/>	US 6052355	20000418	20	Optical pickup apparatus and a compens A	369/112.28	369/53.23; 369/53.41;	
9	<input type="checkbox"/>	<input type="checkbox"/>	US 5808999	19980915	23	Optical pickup apparatus and objective A	369/112.26	369/44.12; 369/44.24;	
10	<input type="checkbox"/>	<input type="checkbox"/>	US 5757758	19980526	44	Optical pickup apparatus objective len A	369/112.25	369/44.12	
11	<input type="checkbox"/>	<input type="checkbox"/>	US 5608715	19970304	28	Multi-layered recording disk and recording/repr A	369/275.1	369/281; 369/94	
12	<input type="checkbox"/>	<input type="checkbox"/>	US 4797545	19890110	11	Optical head device having positionally adj A	250/201.5	369/44.23	
13	<input type="checkbox"/>	<input type="checkbox"/>	US 4577941	19860325	8	Optical apparatus A	359/737	250/493.1; 359/637;	

Hits Details HTML

Ready NUM

US-PAT-NO: 4797545
DOCUMENT-IDENTIFIER: US 4797545 A
TITLE: Optical head device having positionally adjustable parts

----- KWIC -----

Brief Summary Text - BSTX (17):

Therefore, the converging beam which is incident to the information recording surface 4 must be free from any aberration so that the condensed spot 5 formed by the system at the diffraction limit may be radiated on the information track 12. The wave-front aberration which is permissible as the diffraction limit has a standard deviation of 0.07 .lambda. (Marechal limit), where, .lambda. is the wavelength of the LD.

Brief Summary Text - BSTX (25):

For example, if the disk comprises a polycarbonate substrate having a refractive index N of 1.55 and if the condensing lens has a numerical aperture (NA) expressed as $\sin.\theta.\sub.2 = 0.5$, formula (1) gives the rms wave-front aberration of 0.014 .lambda. for light having a wavelength of 0.78 .mu.m if the disk has an error of 50 .mu.m in thickness. This amounts to 20% of the allowable rms wave-front aberration of 0.07 .lambda. which has hereinabove been stated, though the error in thickness of the disk is very small.

US-PAT-NO: 4797545
 DOCUMENT-IDENTIFIER: US 4797545 A
 TITLE: Optical head device having positionally adjustable parts
 DATE-ISSUED: January 10, 1989

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Shikama; Shinsuke	Kyoto	N/A	N/A	JP
Kondo; Mitsushige	Kyoto	N/A	N/A	JP
Toide; Eiichi	Kyoto	N/A	N/A	JP

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mitsubishi Denki Kabushiki Kaisha	Tokyo	N/A	N/A	JP

APPL-NO: 07/ 052860

DATE FILED: April 29, 1987

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	60-200163	September 10, 1985

PCT-DATA:

APPL-NO: PCT/JP86/00416
 DATE-FILED: August 14, 1986
 PUB-NO: WO87/01466
 PUB-DATE: Mar 12, 1987
 371-DATE: Apr 29, 1987
 102(E)-DATE: Apr 29, 1987

INT-CL: [04] G01J001/20

US-CL-ISSUED: 250/201, 369/44

US-CL-CURRENT: 250/201.5, 369/44.23

FIELD-OF-SEARCH: 250/21DF; 250/21AF ; 250/21R ; 250/216 ; 369/44 ; 369/45 ; 369/46

REF-CITED:

U.S. PATENT DOCUMENTS			
PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3932700</u>	January 1976	Snopko	250/2
<u>4128847</u>	December 1978	Rouillet et al.	250/2
<u>4302830</u>	November 1981	Hamaoka et al.	369/4
<u>4354103</u>	October 1982	Immink et al.	250/2
<u>4458144</u>	July 1984	Reilly et al.	369/4

ART-UNIT: 255

PRIMARY-EXAMINER: Nelms; David C.

ASSISTANT-EXAMINER: Oen; William L.

ATTY-AGENT-FIRM: Staas & Halsey

US-PAT-NO: 6052355

DOCUMENT-IDENTIFIER: US 6052355 A

TITLE: Optical pickup apparatus and a compensation element therefor

----- KWIC -----

Brief Summary Text - BSTX (5):

Under the background stated above, there have been proposed various optical pickup apparatuses capable of recording information on and reading information from plural optical disks (hereinafter referred to as recording/reading) by using one light-converging optical system. As one of them, TOKKAIHEI 7-57271 discloses an optical pickup apparatus wherein an objective lens which is designed so that a wave front aberration owned by a beam to be converged is 0.07 .lambda. or less is used for the first optical disk with a transparent base board having a thickness of t_1 , while a converged spot is formed under the slight defocusing state for the second optical disk with a transparent base board having a thickness of t_2 .

Brief Summary Text - BSTX (22):

(13) The optical pickup apparatus described in either one of the structures (1)-(12) above, wherein, when the light-converging optical system converges a luminous flux emitted from a light source on the information recording surface of the first optical information recording medium, best wave front aberration is 0.05 .lambda. rms or less (provided that .lambda. is a wavelength of a light source which is used when reading from and recording on the first optical information recording medium).

Detailed Description Text - DETX (8):

The light-converging optical system is a means which converges a luminous flux emitted from a light source (the first semiconductor laser 111 or the second semiconductor laser 112) on information recording surface 22 through transparent base board 21 of optical disk 20 and thereby forms a spot. In the present embodiment, the light-converging optical system is provided with collimator lens 13 which converts a luminous flux emitted from a light source into a collimated light (or could be a mostly collimated light) and objective lens 16 converges a luminous flux which is converted by collimator lens 13 into a collimated light. This light-converging optical system is arranged so that best wave front aberration may be 0.05 .lambda. rms or less when a luminous flux emitted from the first semiconductor laser 111 is converged on the information recording surface of the first optical disk. "Best wave front aberration" in this case means a wave front aberration wherein defocus component and tilt component are corrected, and its value is expressed with root mean square (rms).

US-PAT-NO: 6363037
DOCUMENT-IDENTIFIER: US 6363037 B1
TITLE: Optical pickup apparatus with objective lens having a phase shift section

----- KWIC -----

Brief Summary Text - BSTX (3):

In recent years, with the practical use of a red semiconductor laser of a short wavelength, development of a DVD (digital video disk or called also a digital versatile disk), which is a high-density optical information recording medium having a larger capacity but a size of the same degree as a CD (compact disk) which is a conventional optical information recording medium (also called an optical disk), has been promoted. In this DVD, the numerical aperture NA of the objective lens at the side of the optical disk is made to be 0.6 in the case where a short wavelength semiconductor laser of 635 nm is used. Further, a DVD has a track pitch of 0.74 .mu.m and a minimum pit length of 0.4 .mu.m, and is made to have a high density more than twice in comparison with a CD, which has a track pitch of 1.6 .mu.m and a minimum pit length of 0.83 .mu.m. Moreover, in addition to the above-mentioned CD and DVD, optical disks having various standards, for instance, such as a CD-R (a direct read after write, writing once compact disk), an LD, an MD (mini-disk), and an MO (magneto-optic disk) are merchandised and have come into general use. In Table 1, the thickness of the transparent substrate and the required numerical aperture of various optical disks are shown.

Brief Summary Text - BSTX (4):

Besides, with regard to the CD-R, it is necessary for the light source to have a wavelength $\lambda = 780$ (nm), but for the other optical disks, a light source having a wavelength other than those noted in Table 1 can be used; in this case, the required numerical aperture NA should be varied in accordance with the wavelength λ of the light source used. For example, in the case of a CD, the required numerical aperture is approximated by $NA = \lambda / 1.73$, and in the case of a DVD, it is approximated by $NA = \lambda / 1.06$.

Brief Summary Text - BSTX (5):

Further, the numerical aperture as referred to in this specification (for example, referred to as NA1, NA2, NAL, NAH, NA3, NA4, etc. hereinafter) means the numerical aperture of the converging optical system as seen from the transparent substrate side. NA1 is a numeral aperture necessary for reproducing information from or recording information in the first optical information recording medium and NA2 is a numeral aperture necessary for reproducing information from or recording information in the second optical information recording medium.

Brief Summary Text - BSTX (12):

However, in the optical pickup apparatus described in Japanese laid open patent H7-302437, it is necessary to make the laser output large because the incident light quantity is simultaneously divided into two focal points by a single objective lens, which brings about high cost. Further, in the optical pickup apparatus described in Japanese laid open patent H7-57271, increasing of

US-PAT-NO: 6353592
 DOCUMENT-IDENTIFIER: US 6353592 B1
 TITLE: Optical recording medium and optical disk device
 DATE-ISSUED: March 5, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kashiwagi; Toshiyuki	Tokyo	N/A	N/A	JP
Sakamoto; Tetsuhiro	Chiba	N/A	N/A	JP
Ohsato; Kiyoshi	Chiba	N/A	N/A	JP

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sony Corporation	Tokyo	N/A	N/A	JP

APPL-NO: 09/ 242911

DATE FILED: June 9, 1999

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	9-172642	June 27, 1997

PCT-DATA:

APPL-NO:	PCT/JP98/02822
DATE-FILED:	June 24, 1998
PUB-NO:	WO99/00794
PUB-DATE:	Jan 7, 1999
371-DATE:	Jun 9, 1999
102 (E)-DATE:	Jun 9, 1999

INT-CL: [07] G11B007/24

US-CL-ISSUED: 369/283, 369/286, 369/275.5, 428/64.4, 430/271.1

US-CL-CURRENT: 369/283, 369/275.5, 369/286, 428/64.4, 430/271.1

FIELD-OF-SEARCH: 369/275.2; 369/94 ; 369/13 ; 369/286 ; 369/283 ; 369/275.4
 ; 369/275.5 ; 369/275.3 ; 369/284 ; 369/275.1 ; 369/280
 ; 428/199 ; 428/64.4 ; 430/270.21 ; 430/271.1

REF-CITED:

U.S. PATENT DOCUMENTS			
PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4525412	June 1985	Nakane et al.	428/19
5244706	September 1993	Hirata et al.	428/6
5397597	March 1995	Soga et al.	427/25
5508981	April 1996	Watanabe et al.	369/2
5726970	March 1998	Kaneko et al.	369/2
5907534	May 1999	Yamatsu	369/2
<u>6156482</u>	December 2000	Hamada et al.	430/2

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
5-33319	April 1993	JP	
9-134547	May 1997	JP	
9-147417	June 1997	JP	

US-PAT-NO: 6515808

DOCUMENT-IDENTIFIER: US 6515808 B2

TITLE: Optical pickup apparatus and objective lens

----- KWIC -----

Brief Summary Text - BSTX (3):

In recent years, with the practical use of a red semiconductor laser of a short wavelength, development of a DVD (digital video disk or called also a digital versatile disk), which is a high-density optical information recording medium having a larger capacity but a size of the same degree as a CD (compact disk) which is a conventional optical information recording medium (also called an optical disk), has been promoted. In this DVD, the numerical aperture NA of the objective lens at the side of the optical disk is made to be 0.6 in the case where a short wavelength semiconductor laser of 635 nm is used. Further, a DVD has a track pitch of 0.74 .mu.m and a minimum pit length of 0.4 .mu.m, and is made to have a high density more than twice in comparison with a CD, which has a track pitch of 1.6 .mu.m and a minimum pit length of 0.83 .mu.m. Moreover, in addition to the above-mentioned CD and DVD, optical disks having various standards, for instance, such as a CD-R (a direct read after write, writing once compact disk), a CD-RW, a LD (laser disk), an MD (mini-disk), and an MO (magneto-optic disk) are merchandised and have come into general use. In Table 5, the thickness of the transparent substrate and the required numerical aperture of various optical disks are shown.

Brief Summary Text - BSTX (4):

Besides, with regard to the CD-R, it is necessary for the light source to have a wavelength $\lambda = 780$ (nm), but for the other optical disks, a light source having a wavelength other than those noted in Table 5 can be used; in this case, the required numerical aperture NA should be varied in accordance with the wavelength λ of the light source used. For example, in the case of a CD, the required numerical aperture is approximated by $NA = \lambda / (1.73 \cdot \mu m)$, and in the case of a DVD, it is approximated by $NA = \lambda / (1.06 \cdot \mu m)$.

Brief Summary Text - BSTX (5):

Further, the numerical aperture as referred to in this specification (for example, referred to as NA1, NA2, NAL, NAH, NA3, NA4, etc. hereinafter) means the numerical aperture of the converging optical system as seen from the transparent substrate side.

Brief Summary Text - BSTX (20):

where, in case that the first portion converges the first light flux on a first information recording plane, SC1 is a sine condition dissatisfaction amount of the first portion of the objective lens for a light flux at a height in the first light flux, and in case that the first portion converges the first light flux on a first information recording plane, f1 is a focal length of the first portion of the objective lens for a light flux at a height in the first light flux. Incidentally, the term "an amount of the first light flux not less than 30% of the total amount of the first light flux passing the first portion" does not mean "not less than 30% of an energy amount of the first light flux passing the first portion" and means "rays not less than 30% of the first light flux passing the first portion". The above note can be judged from the following figure.

US-PAT-NO: 6349083

DOCUMENT-IDENTIFIER: US 6349083 B1

TITLE: Near field type optical disk recording information recording medium recording reproducing objective lens

----- KWIC -----

Brief Summary Text - BSTX (2):

The present invention relates to an apparatus for recording information in an optical information recording medium and a pickup apparatus for use in the apparatus. The innovation relates to a near field type optical apparatus in which a distance between an object of an optical disk is smaller than an order of the objective lens and a pickup apparatus for use in the present invention relates to an optical recording system whose numerical aperture (numerical aperture) is larger and a high resolution.

Brief Summary Text - BSTX (5):

In this optical system, since a precise optical system is constructed with the two pieces of lenses, it is not needed for assembling and adjustment. Furthermore, by polishing. As a result, the cost for the

Brief Summary Text - BSTX (45):

As stated above, in a near field type optical system of the present invention comprises a lens whose light source side is a curved surface. It may be preferable that a ring on the curved surface. It may be preferable that the side is a flat surface. It may be preferable in a flat convex lens as a whole.

Brief Summary Text - BSTX (53):

where ψ is a power of the entire system, ψ_d is the sum of the power of the diffraction power of the diffraction surface of the second wavelength of the light source, and NA is a numerical aperture of the objective lens.

Brief Summary Text - BSTX (65):

where ψ is a power of the entire system, ψ_d is the sum of the power of the diffraction power of the diffraction surface of the second wavelength of the light source, NA is a numerical aperture of the objective lens.

Brief Summary Text - BSTX (70):

U.S. Patent Feb. 19, 2002 Sheet 8 of 11 US 6,349,083 B1

FIG. 15

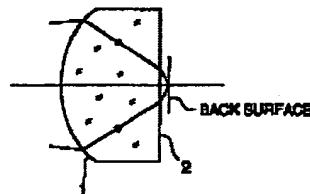
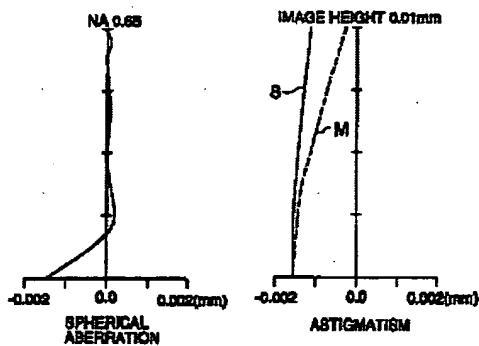


FIG. 16



US-PAT-NO: 6349083

DOCUMENT-IDENTIFIER: US 6349083 B1

TITLE: Near field type optical disk recording information recording medium recording reproducing objective lens

----- KWIC -----

Brief Summary Text - BSTX (2):

The present invention relates to an apparatus for recording information in an optical information recording medium and a pickup apparatus for use in the apparatus. The innovation relates to a near field type optical disk recording apparatus in which a distance between an objective lens and a pickup apparatus for reading information recorded on an optical disk is smaller than an order of magnitude. The present invention relates to an objective lens whose numerical aperture is larger and a high definition pickup apparatus.

Brief Summary Text - BSTX (5):

In this optical system, since a precise optical system is constructed with the two pieces of lenses, it is not necessary to provide a lens for assembling and adjustment. Furthermore, by polishing. As a result, the cost for the assembly is reduced.

Brief Summary Text - BSTX (45):

As stated above, in a near field type optical system of the present invention comprises a lens whose light source side is a curved surface. It may be preferable that a ring on the curved surface. It may be preferable that the light source side is a flat surface. It may be preferable in a flat convex lens as a whole.

Brief Summary Text - BSTX (53):

where ψ is a power of the entire system, ψ_d is the sum of the power of the diffraction power of the diffraction surface of the second wavelength of the light source, and NA is a numerical aperture of the objective lens.

Brief Summary Text - BSTX (65):

where ψ is a power of the entire system, ψ_d is the sum of the power of the diffraction power of the diffraction surface of the second wavelength of the light source, NA is a numerical aperture of the objective lens.

Brief Summary Text - BSTX (70):

U.S. Patent Feb. 19, 2002 Sheet 8 of 11 US 6,349,083 B1

FIG. 15

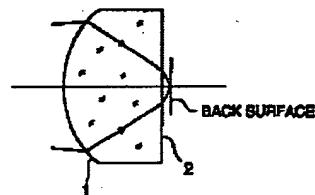
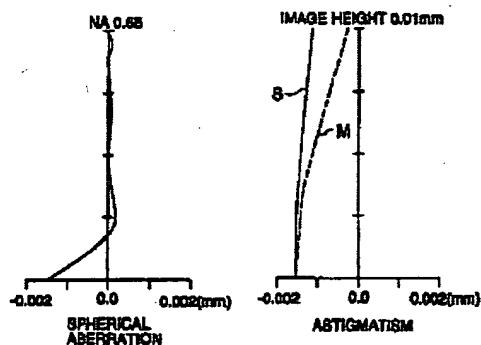


FIG. 16



US-PAT-NO: 6349083

DOCUMENT-IDENTIFIER: US 6349083 B1

TITLE: Near field type optical disk recording information recording medium recording/reproducing objective lens

----- KWIC -----

Brief Summary Text - BSTX (2):

The present invention relates to an apparatus for recording information in an optical information recording medium and a pickup apparatus for use in the apparatus. The innovation relates to a near field type optical recording apparatus in which a distance between an objective lens and an optical disk is smaller than an order of magnitude. The present invention relates to an recording/reproducing objective lens whose numerical aperture (numerical aperture) is larger and a high resolution pickup apparatus.

Brief Summary Text - BSTX (5):

In this optical system, since a precise optical system is constructed with the two pieces of lenses, it is needed for assembling and adjustment. Furthermore, by polishing. As a result, the cost for the

Brief Summary Text - BSTX (45):

As stated above, in a near field type optical system of the present invention comprises a lens whose light source side is a curved surface. It may be preferable that a ring on the curved surface. It may be preferable that the side is a flat surface. It may be preferable in a flat convex lens as a whole.

Brief Summary Text - BSTX (53):

where ψ is a power of the entire system, ψ_1 is the sum of the power of the diffraction power of the diffraction surface of the second wavelength of the light source, and NA is a numerical aperture of the objective lens.

Brief Summary Text - BSTX (65):

where ψ is a power of the entire system, ψ_1 is the sum of the power of the diffraction power of the diffraction surface of the second wavelength of the light source, NA is a numerical aperture of the objective lens.

Brief Summary Text - BSTX (70):

U.S. Patent Feb. 19, 2002 Sheet 9 of 11 US 6,349,083 B1

FIG. 17

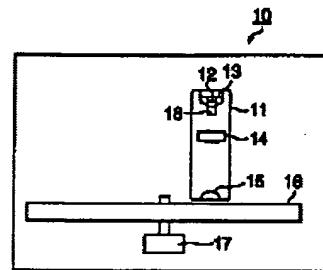


FIG. 18(a)

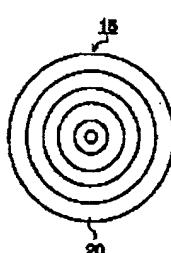
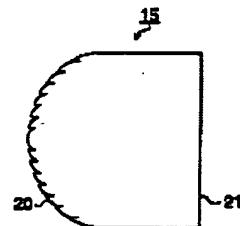


FIG. 18(b)



US-PAT-NO: 6141305

DOCUMENT-IDENTIFIER: US 6141305 A

TITLE: Optical disk recording and reproducing apparatus and method and tracking servo apparatus and method

----- KWIC -----

Detailed Description Text - DETX (16):

In this case, in order to make the optical disk 1 high in density, as the objective lens 5 installed in the optical pickup 4 so as to oppose the optical disk 1, there may be utilized a 2-group lens realizing a high numerical aperture (NA).

Detailed Description Text - DETX (17):

As shown in FIG. 2, the 2-group lens is formed of two lenses, or a front lens 103, whose surface on the side of the optical disk 1 is flat while whose surface on the side of an objective lens 104 is a curved surface of aspheric, and the objective lens 104 which is an aspherical lens. A hemispherical lens formed of a flat surface and a spherical surface may be used as the front lens 103.

Detailed Description Text - DETX (22):

The 2-group lens uses a light source with the wavelength larger than 680 nm and has a high NA more than 0.7, for example 0.81. The working distance between the objective lens 104 and the optical disk 1 is less than 560 .mu.m, for example, 100 .mu.m. Therefore, the 2-group lens has a high NA, a small clearance against the optical disk 1 and its aberration is reduced.

EAST - [a1.wsp:1]

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Drafts
 BRS: 9 and ("near
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 L1: (573) ((objective imag
 L2: (31) 1 same ((parallel
 L3: (0) 2 and (na same .7
 L4: (0) 3 and na
 L5: (15) 2 and na
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 (0) 7 and (na near5 "0.85"
 (0) 4 and ((lens near5 hol
 ((objective imaging) n
 Saved
 Favorites
 Tagged (0)

Search List Browse Queue Clear
 DBs USPAT Plurals
 Default operator: OR Highlight all hit terms initially

2 and na

Document ID Issue Date Pages Title Current OR Current XR Retrieval

1	<input type="checkbox"/>	<input type="checkbox"/>	US 6490100	20021203	15	Objective lens and optical head device	359/719	359/708; 359/710;	
2	<input type="checkbox"/>	<input type="checkbox"/>	US 6480455	20021112	20	Optical pickup device applicable to two kinds	369/112.22	369/112.01	
3	<input type="checkbox"/>	<input type="checkbox"/>	US 6349083	20020219	23	Near field type optical disk recording reproducing apparatus	369/112.23	359/719; 369/112.08	
4	<input type="checkbox"/>	<input type="checkbox"/>	US 6343058	20020129	20	Optical pickup device applicable to two kinds	369/112.1	369/94	
5	<input type="checkbox"/>	<input type="checkbox"/>	US 6229600	20010508	14	Spherical-aberration detection system and optical apparatus	356/123		
6	<input type="checkbox"/>	<input type="checkbox"/>	US 6141305	20001031	14	Optical disk recording and reproducing apparatus	369/44.32	369/53.18	
7	<input type="checkbox"/>	<input type="checkbox"/>	US 5978140	19991102	19	Method for designing diffractive lenses	359/569	359/565; 359/570;	
8	<input type="checkbox"/>	<input type="checkbox"/>	US 5793539	19980811	38	Optical system for endoscopes	359/739	359/708	
9	<input type="checkbox"/>	<input type="checkbox"/>	US 5777803	19980707	18	Objective lens for optical pick-up head of	359/719	359/742; 359/743	
10	<input type="checkbox"/>	<input type="checkbox"/>	US 5657168	19970812	58	Optical system of optical information recording and reproducing apparatus	359/719	359/618; 359/717;	
11	<input type="checkbox"/>	<input type="checkbox"/>	US 5384654	19950124	12	Image observation device	359/364	359/630; 359/631;	
12	<input type="checkbox"/>	<input type="checkbox"/>	US 5379266	19950103	33	Optical random access memory	365/234	365/125; 365/215;	
13	<input type="checkbox"/>	<input type="checkbox"/>	US 5289313	19940222	13	Optical head using semiconductor laser array	369/112.28	369/121	
14	<input type="checkbox"/>	<input type="checkbox"/>	US 4867546	19890919	37	Objective lens system for an endoscope	359/714		
15	<input type="checkbox"/>	<input type="checkbox"/>	US 4820029	19890411	7	Objective lens for optical pickup	359/719		

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	U	I	Document ID	Issue Date	Pages	Title	Current OR	Current XR	Retrieval
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 20020186476	20021212	20	Optical system for optical disk, optical h	359/719	359/717; 359/718	
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 20020105733	20020808		Optical scanning device	359/719		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 20020064121	20020530		Optical pickup device applicable to two kinds	369/112.22	369/112.24	
4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 20020027863	20020307		Complex objective lens and method for manufact	369/112.24		
5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 20020024741	20020228		Projection optical system and projection e	359/627	359/628; 359/629	
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 20010015939	20010823		Objective lens for optical pick-up	369/13.01		
7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	JP 02101416 A	19900413		OBJECTIVE LENS FOR OPTICAL MEMORY		359/737	

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